DEPARTMENT OF POLITICAL SCIENCE

CUE OR NO C(L)UE?

How parties shape climate opinion formation using experimental insights from USA and Sweden

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Abstract

As a central actor in shaping domestic climate policies, political parties play a vital role in building public support for policies aimed at mitigating climate change. However, previous research has neglected the role of political parties for individual climate opinion formation. This thesis studies the potential for political parties to lead public opinion into becoming more supportive of climate mitigation policies. I investigate whether party cues increase peoples' willingness to take policy information that demonstrate the usefulness of climate policies into account in their opinion formation. I test the hypothesis that in-party cues in combination with policy information increase policy support with unique experimental data on two recent climate policy initiatives in USA and Sweden, two countries that have used considerably different approaches to climate change mitigation. The experimental results find no support for my hypotheses. While in-party cues together with policy information were not found to significantly increase policy support, results also indicated a lowering support when the policies were endorsed by out-parties. The implications of the results nuance long-standing evidence of elite influence on citizens' policy opinions and question the ability of political parties to shape public climate policy preferences.

Key words: Public opinion, political parties, party cues, climate policy, experiments

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Acknowledgements

Introduction

Despite the successful ratification of the Paris Agreement in 2015, large disagreements between and within countries remain about the appropriate policies to combat climate change. This thesis focuses on how public support for climate change policies can be fostered. The idea is that in order for policy designs to have their intended effect, they need to have public support. Public support not only grants political legitimacy but also reduces the risk of policy withdrawal as a consequence of government shifts (Linde, 2018b). Understanding the factors behind climate policy support is therefore essential for any successful implementation of policies aimed at mitigating climate change. The question I ask is: how do political parties shape citizens' opinions toward climate policies?

To date, research has often focused on how individuals' values, beliefs, norms and ideological orientation matter for environmental policy support (Jagers et al., 2018; Steg & Vlek, 2009). My take on the field is to give attention to the information that citizens receive thanks to the political parties they identify with. I follow a stride of research suggesting that information can be provided by policy stances from political parties, which through political signaling or "cues" can help people connect their individual predispositions to reasoned and correct policy choices (Lau & Redlawsk, 1997, 2001; Lupia, 1994).

Thus far, comparatively few studies have focused on the role of political parties on citizens' climate policy opinions. More specifically, I identify a gap in the literature when it comes to whether party cues make citizens take into account information about the usefulness of climate policies. Through this mechanism, parties can shape citizens' policy preferences and strengthen climate policy support.

The neglected role of political parties in previous literature is surprising given that political parties are at the heart of democratic processes and domestic climate politics. Party competition shape national governments' climate responses: domestically by the introduction of policy measures and internationally by providing governments with opportunities and constraints in international climate negotiations. Thus, political parties are in the front and center of climate policy-making and play an important role in shaping climate policy opinions. The lack of focus on political parties has been aptly summarized by Farstad (2018, p. 705), claiming that "it would be useful to explore whether the parties themselves shape public opinion on the issue by providing cues for the electorate".

There are good reasons to believe that cues from political parties can influence citizens' climate policy opinions. Climate change is by many viewed as an abstract and distant

phenomenon, where perceived complexity around proper mitigation policies enhances the dependence of party cues, since the absence of trusted source information make the consequences of policy implementations unclear (Boudreau, 2009; Marx et al., 2007). Moreover, studies have found party identification to be an important predictor for beliefs in climate change and climate change attitudes (Clements, 2014; Dunlap & McCright, 2008; McCright & Dunlap, 2011; McCright et al., 2016; Tranter, 2011) and that elite cues affect public concern over climate change (Brulle et al., 2012). However, most studies in this field lack suitable operationalizations of party cues and a more precise focus on the role of political parties in the formation of policy attitudes. Given the centrality of political parties as an actor in shaping public policies and government responses to climate change, their prospects for climate leadership by shaping public policy preferences need to be further explored.

The mechanism in focus in this thesis is that party cues will help the individual to take in important information on climate policies, since the party endorser is seen as a trustworthy source that the citizen identify with as part of his/her in-group. Or to put it differently – that parties are able to lead citizens to correct perceptions of the usefulness of climate policies. This narrows down to the question: after receiving information that presents the consequences of a climate policy, will the additional provision of a cue from one's political party generate stronger policy support compared to when only reading policy information?

Party cues can come in different forms and I identify two forms as interesting for this thesis: in-party cues and out-party cues. The idea is that when people read policy information that is supported by their preferred party (their in-party), the party cue will make people accept the substance of the information and align their opinion with their party as it is seen as a trusted informational source that people identify with. In contrast, when the policy is supported by a party people do not identify with (an out-party), they will reject the informational content and take an opposite position than that of the out-party through a process of out-group rejection (Huddy et al., 2015). Influential decision-making theories claim that the provision of additional information increases the complexity of political evaluations and reliance on party cues (Lau & Redlawsk, 2001). More recent accounts suggest that party cues lead to more effortful processing of policy information that motivates people to "produce arguments for the correctness of their party's position" (Petersen et al., 2013). Unique survey data on two recent climate policy initiatives is collected from the online work marketplace Amazon Mechanical Turk (MTurk) and among a convenience sample of Swedish citizens, where respondents from United States and Sweden are examined through survey experiments.

I test the mechanism that party cues will help individuals take in important climate policy information in USA and Sweden since those are two comparatively different contexts when it comes to climate policies. If the mechanism is found in two political contexts that have undertaken considerably different approaches to climate change mitigation, it would strengthen the generalizability of my findings. USA and Sweden differ in several important aspects that make the two countries suitable cases to test my expectations. Whereas USA has a bipolar political system with two parties structuring domestic political space, Sweden has a multi-party system with a larger set of parties to choose from. Moreover, in the US climate issues are subject to deep partisan and ideological polarization (McCright & Dunlap, 2011), and large segments of Republican party elites are outspoken climate deniers that repeatedly take climate policy positions contrary to scientific consensus. In Sweden however, political elites have long had an ambition to be frontrunners on climate mitigation. Despite that climate policy-related conflicts have recently become increasingly present (Harring & Sohlberg, 2017), the policy area has long been characterized by overall partisan consensus (Linde, 2018a). Additionally, the United States has long been reluctant to take a leadership role in the global community's climate mitigation efforts and has a history of backing down from global environmental agreements (Pickering et al, 2018). Sweden on the other hand has been keen to take a leadership role in international climate negotiations and has become one of the most significant climate actors on the international stage (Sarasini, 2009).

This study focuses on climate *policies* as the dependent variable. Previous work on political parties and climate opinion, mostly focusing on a US context, has considered how political parties shape peoples' perceptions of the existence and threat of *climate change*. Less is known about how political parties influence public opinion to the policy instruments at the state's disposal. Since partisan conflict on climate issues in most Western democracies centre around appropriate climate policy tools rather than the mere existence of climate change (Linde, 2018b), I add to the literature by studying how political parties influence citizens' opinions towards policies.

The reason to choose an experimental design is that it offers a better way to study the impact of party cues than previous studies have accomplished. Experimental designs help identify causal effects that are otherwise difficult to establish. Most previous studies in the field of environmental politics are based on cross-sectional survey data, in which some (e.g. Linde, 2018b, 2018a) have measured party cues by survey respondents' perceptions of parties' policy stances. That is however a sub-optimal indication that one has received a party cue (Bullock, 2011) and is therefore difficult to measure in non-experimental research designs. As Azrout

and Vreese (2018, p. 387) argue: for any cues to be successful it must be *exposed* to people, a task for which cross-sectional designs are not ideal but where experiments offer a more fruitful approach. Experimental designs have been used in related fields, such as how general environmental support varies by ideological orientation (Harring & Sohlberg, 2017). To date however, too little work has experimentally investigated how political parties shape citizens' climate policy opinions.

This study adds theoretical knowledge to a long-standing research debate on the influence of political parties by providing evidence from two different contexts on a pressing political issue that have received limited attention by previous research. From a societal perspective, this study provides knowledge for political parties on how they can shape public opinion on policies that will become ever more relevant for fulfilling domestic and international climate ambitions.

The implications of this study will be of benefit for scientists and policy experts, who often have good knowledge of the most effective policy tools but fail to gain sufficient attention from political parties and public opinion. If policy information would lead to higher policy support when presented with in-party cues, it would send a signal to those actors to engage more intensively with political parties to gain attention and support for policy recommendations. If in-party cues would fail to enhance policy support, and out-party cues even were to lower policy support, it would implicate that political parties face an uphill battle in convincing public opinion of the appropriateness of policy measures that may become increasingly prominent in domestic climate policy discourse.

The remainder of the study is organized as follows. I first engage with previous literature and outline the theory of how political parties can shape public opinion on the climate, followed by a presentation of my experimental design. I then present the results followed by a discussion where I scrutinize my findings. Lastly, I conclude with a summary and suggest ideas for future research.

Theory

In the following chapter I seek to provide an overview of the previous work in the field upon which I build my theoretical expectations. I start by engaging with a broad literature on how political parties can be expected to influence public opinion. I then focus on the varying effects of in-party cues and out-party cues, after which I summarize my theoretical section and present my hypotheses.

Much research has shown political parties to play a fundamental role for citizens' political opinions. Citizen's opinions are not formulated in a vacuum but repeatedly shaped by the political context wherein the individual is required to connect her ideological predispositions to policy choices (Leeper & Slothuus, 2014). Political parties are at the centre of democratic political competition by structuring and providing policy alternatives to citizens by acting as a politically "mobilizing" force (Disch, 2011).

Recent research emphasizes that political parties constitute an influential force over citizens' opinions about contemporary political issues and color their perceptions of political reality (Carsey & Layman, 2006). While being aware of the long-standing research debate whether political parties lead or follow public opinion (Leeper & Slothuus, 2014), I take my departure in *how* political parties can be expected to influence public opinion as parties "have long been considered one of the most important determinants of mass-political behavior in democracies" (Brader & Tucker, 2012, p. 403).

How party cues affect public opinion

To form policy opinions and make other political choices, citizens need information that help them interpret the ideological consequences of different policies and to connect these choices to political predispositions. As many people lack any substantive knowledge or interest of contemporary political issues (Converse, 2006), they often take advantage of messages from political parties to form their policy preferences without performing the cognitively demanding task of paying close attention to politics. Such messages are commonly known as party cues (Bullock, 2011). Party cues contain pieces of information that link political parties to a policy position. Thus, party cues "provide explicit information about which political party (or parties) supports or opposes a given policy" (Leeper & Slothuus, 2014, p. 135).

Party cues give individuals a simple and efficient way to figure out the "correct" position on policy issues that is in line with individual predispositions, such as their ideological preferences. Thus, political parties are "an opinion-forming agency of great importance"

(Campbell et al., 1960, p. 128) that provide a simple basis through which people can evaluate policy proposals. Downs (1957) early argued that citizens rely on cues as pieces of information from political parties to draw conclusions on which parties that best serve their political interests, simply because they abstain from searching for additional information on their own. Hence, party cues work as heuristic "shortcuts" that contain just enough information that help citizens reach satisfactory policy conclusions (Goren et al., 2009; Leeper & Slothuus, 2014).

A key aspect of the party cue literature is that cues can help citizens form opinions *as if* they were in possession of enough information or knowledge about politics. Influential work emphasize that people with lower policy knowledge use cues to form as good decisions as those with higher levels of policy knowledge (Lupia, 1994; Lupia & McCubbins, 1998). Party cues has subsequently been shown to increase the propensity of "correct" voting, i.e. a "choice which would be made under conditions of full information" (Lau & Redlawsk, 1997, p. 586). Bullock (2011, p. 497) notes that citizens can use party cues "to infer other information, and, by extension, to make decisions". Thus, party cues may not only help people align their policy positions with that of their preferred party, but also help citizens to make further sense of the policies that parties endorse. Hence, party cues can be utilized by citizens to enhance their political understanding without possessing specific policy details (Leeper & Slothuus, 2014).

To illustrate how a cuing process can work in the context of climate policy, consider the up until recently heated debate in Swedish politics over a tax on aviation. The Social Democrat/Green Party government coalition introduced the aviation tax in 2018 to reduce air travel and emissions of aviation traffic. In contrast, the right-wing opposition parties criticized the tax as they argued that it would be ineffective. Deciding whether to support or oppose the aviation tax would be a challenging task for many voters, that would include an estimation of the policy's effectiveness as well as trade-offs between different values. Instead, an efficient way for most people to reach an adequate policy opinion would be to adopt the policy position of their preferred party. It could therefore be expected that supporters of the red-green government coalition parties would support the aviation tax, while supporters of the right-wing opposition parties would oppose it.

Climate change policies is a policy area where party cues can be expected to be particularly important for citizens' opinions. The scientific complexity of climate change and the uncertain effects of policies aimed at mitigating its consequences can lead people to dismiss policy-related information that is not provided by a trusted source (Marx et al., 2007). Instead, cues from political parties are by most people perceived as a trusted source of information, that may more strongly shape people's policy opinions that information without a clear source

(Brulle et al., 2012). This is in line with suggestions that citizens become more dependent on party cues on more complex policy issues and difficult policy decisions (Boudreau, 2009; Nicholson, 2012). As climate change by many still is perceived as a rather abstract and distant phenomenon of which the consequences are difficult to foresee, this would be a typical policy area where citizens will rely more heavily on party cues. In such instances, political parties may thus be even more influential when citizens form their policy opinions.

Recently, in times where competing political information is more accessible and complex than ever (Druckman, 2015), the prediction that party cues will become more influential has gained empirical attention. Following from this, a common presumption is that when citizens face detailed issue descriptions on policies, party cues will become even more important (Druckman & Lupia, 2016). In the seminal work of Lau and Redlawsk, they argue that cues "should be relied upon more heavily in more cognitively complex situations" (Lau & Redlawsk, 2001, p. 955), i.e. in situations where citizens have to consider a varying amount of details about policies or political candidates. Ultimately, this task makes citizens turn to party cues as a coping strategy to deal with information overload. They theorize, and find, that the provision of more details about political candidates increases the reliance of party cues compared to settings with less candidate information (Lau & Redlawsk, 2001). The most important takeaway from their work is that cues, regardless of political knowledge, are used by most people in their formation of policy judgements.

Additional work underlines that party cues remain a predictor of opinion in more complex decision processes. Cohen (2003) found that citizens' motivations to stay loyal to their political party outweighed motivations to form policy beliefs consistent with their ideological orientations. When party cues were given in combination with details about mock welfare policies, subjects aligned their policy position with that of their preferred party regardless of the content of the policy (Cohen, 2003). In line with Cohen's seminal work, similar evidence by Rahn (1993) and Arceneaux (2008) suggest that people follow cues from their parties even in situations where policy suggestions and statements are counter-stereotypical from parties' ideological reputation. Even though recent work suggest that citizens' opinions are at least as much affected by objective policy content as by party cues (Boudreau & MacKenzie, 2014; Bullock, 2011), abovementioned research findings underline that political parties' policy positions are of great importance when citizens structure their policy preferences.

Overall, abovementioned research has produced considerable evidence that political parties can influence citizens' opinions in the way that party cues make citizens align their policy preferences with those of their preferred party. However, an important question that

arises from this assumption is how citizens respond to messages from other parties. Recent work in this regard suggest that party cues have different effects on citizens with different partisan stripes.

The different effects of in- and out-party cues

Why do party cues work as shortcuts? A dominant perspective in research suggests that political parties are a central and durable part of a citizen's identity (Campbell et al., 1960; Green et al., 2002) that provide people the opportunity to characterize themselves and political representatives who share their party identification as in-group members. Subsequently, political representatives who do not share the party identification (i.e. people who identifies with other parties) are characterized as out-group members (Huddy et al., 2015; Nicholson, 2012).

Party cues activate and accentuate such identities. When processing a party cue, it is expected that the individual's party identification "raises a perceptual screen through which the individual tends to see what is favorable to his partisan orientation" (Campbell et al., 1960, p. 133). Thus, individuals evaluate political information from parties they identify with favorably as they are considered part of the in-group, while information from other parties are evaluated unfavorably since those parties are considered as out-groups (Huddy et al., 2015). The essence of this perspective has been aptly summarized by Azrout and Vreese (2018, p. 336), saying that "individuals consider members of the party they identify with to be viewed as members of the in-group and thus are shown a positive bias, whereas members of another party are considered members of an out-group and are consequently shown a negative bias".

This account could be understood through the theory of motivated reasoning (e.g. Druckman et al., 2013; Slothuus & de Vreese, 2010). The theory holds that citizens utilize party cues to stimulate "directional" goals, which motivate them to form opinions that are in line with their existing beliefs and political identities (Taber & Lodge, 2006). When interpreting new information, cognitive responses make people systematically process policy content so it is consistent with prior views and counterargue political information that contradict existing opinions. Party cues therefore color citizens' interpretations of the substance of policy information (Bolsen et al., 2014). The party endorsement makes citizens base their policy evaluations on whether they trust the source of the information and how they interpret the facts at hand (Bisgaard & Slothuus, 2018). Specifically, if people read political information that is sponsored by their in-party, people should pay closer attention to the content and assess it more

favorably as it is endorsed by their in-party. In contrast, when the content is sponsored by an out-party, citizens will read through the policy substance with a negative bias, which lead to a less favorable policy opinion. Thus, people take use of in-party cues to think through the policy substance and toe the party line, while simultaneously reject the informational content and take the opposite position when it is supported by out-parties (Petersen et al., 2013).

This explanation has recently received considerable empirical attention. For instance, Druckman et al. (2013) demonstrated that party cues made people more likely to follow in-party endorsements on energy and immigration policy, even if the endorsement contradicted the party's ideological reputation and strong policy arguments for the opposite position. However, when the exact same information was endorsed by the out-party, people took the opposite position to mark distance from the out-party. Others have also found cues from out-parties to be as influential for people's policy opinions as cues from in-parties (Goren et al., 2009; Nicholson, 2012). Therefore, the ability of political parties to shape public opinion is not limited to in-party cues but is just as likely to take place in the presence of out-party cues.

Hence, people of different partisan stripes can be expected to react differently to different party cues. When reading information about a new policy proposal, we can therefore expect that peoples' policy opinions will be shaped by the party that supports the policy. When a person read a cue from their preferred party, they will pay attention to the content of the information and form a policy opinion that is in line with their party's opinion. In contrast, if a person read a cue from an out-party, they will reject the informational content and form an opposite opinion than that of the out-party. In terms of climate policies, when a left-wing party indicate their support for a climate policy proposal, people with left-wing party preferences can be expected to accept the message and be more supportive of the policy, while people with right-wing party preferences will reject the message and be less supportive of the policy.

Theoretical summary and hypotheses

Previous research has provided much insights into how party cues affect the policy preferences of citizens. Based on previous work cited there are strong theoretical reasons to expect that party cues can enhance citizen support for climate policies. Party cues have been found to be a major source for which people structure their policy opinions (Lau & Redlawsk, 2001; Lupia, 1994). In the case of climate change, previous work provides even more compelling reasons to expect that political parties shape the policy opinions of citizens. The inherent complexities around climate change policies can be expected to increase people's dependence on party cues when forming their policy attitudes (Boudreau, 2009; Nicholson, 2012). Therefore, when people are being presented with information on a climate policy proposal without a clear source, it can make people uncertain and fail to update peoples' policy preferences. In contrast, when reading information endorsed by a political source it can be expected to significantly shape citizens' opinions of the policy.

We could therefore expect that people become more supportive of climate policies when they read policy information that is endorsed by their political party. The idea is that when people read policy information endorsed by a party they identify with (their in-party), the cue will make them read policy information with a partisan lens, which enhances the probability that they take the policy information into account and process the policy content to reach a policy conclusion that is consistent with their party's position. *My first expectation (H1) is therefore that citizens provided with policy information and in-party cues will have a higher level of climate policy support than citizens that are provided with only policy information.*

Further, I test how citizens respond to policy information that is endorsed by an out-party. Recall that a core theoretical expectation from previous research is that people form policy opinions that correspond with their party's position. However, when reading policy recommendations supported by out-parties, people are expected to reject the content of the information and take an opposite policy stance (Bisgaard & Slothuus, 2018; Campbell et al., 1960). We could therefore expect that people of different partisan stripes will react differently to different party cues. In the US, Democrats could be expected to be significantly less supportive when the policy is supported by Republicans, and Republicans could be expected to be significantly less supportive when the policy is supported by Democrats. In Sweden, left-wing party supporters could be expected to be significantly less supportive with a Moderate Party cue, while right-wing supporters could be expected to be significantly less supportive with a Social Democrat cue.

Hence in both countries, we can expect negative effects of party cues among both left-wing respondents and right-wing respondents when the policy information is endorsed by an out-party. *My second expectation (H2) is therefore that citizens provided with policy information and out-party cues will have a lower level of climate policy support than citizens that are provided with <u>only</u> policy information.*

Study design

I conduct survey experiments to test my hypotheses. Experimental designs offer a powerful tool for theory testing as it allows for a sharp distinction between cause and effect by which we can determine causality (Mullinix et al., 2015). I manipulate the survey to create variance to study if the adding of treatment stimuli (party cues, policy information or a combination of the two) has the hypothesized effects on climate policy support.

With the experimental approach I make sure that respondents actually are *exposed* to party cues and study if cues shape climate policy support. Experimental designs in political science "are increasingly seen as a preferred method of discovery and inference" (Druckman & Lupia, 2012, p. 1178), and are frequently used by scholars to explain how variations in the presentations of political phenomena affect policy opinions among diverse citizen populations (Druckman & Lupia, 2012).

While experiments offer a powerful facilitation of causal inference, they are however not without weaknesses. First and foremost, experiments study people, where the prospects for external validity and generalizability may be hindered if study objects are not representative for the population the experiment seeks to say something about. Furthermore, experiments include constructed situations that may not always be as close to reality as preferred, which hamper replication possibilities as well as chances of finding similar effects in a real-world setting. To construct experimental manipulations as close to reality as possible is therefore an important part of any experimental study.

To enhance external validity and test whether my expectations are found in different political contexts, I collect data on citizens from two countries – USA and Sweden. As previously mentioned, I use USA and Sweden since those are two comparatively different political environments, both in terms of political systems and partisan polarization but also when it comes to how partisan elites and citizens have addressed and prioritized climate policy issues at domestic and international level. If my expectations about the influence of political parties hold across two political contexts that have undertaken considerably different approaches to climate change mitigation, it would strengthen the generalizability of my findings. In the next section I describe the experimental design which was very similar in the two studies.

Study 1: USA

For the US study, I conducted a survey experiment and recruited American respondents on Amazon Mechanical Turk (MTurk), an online crowdsourcing platform that has become increasingly popular in the social sciences for conducting survey experiments to a low cost directed toward heterogeneous samples (Paolacci, 2010). MTurk uses an opt-in sample, where subjects self-select to participate. The sample is thus not a population-based sample. While population-based samples are preferable in terms of representativeness, opt-in samples results have been found to often replicate studies with population-based samples (Mullinix et al., 2015).

Experimental subjects recruited from MTurk have not been found to systematically differ from population-based subjects when taking standard social and political characteristics into account (Levay et al., 2016). Empirical studies find that causal effects estimates do not significantly differ between self-selected convenience samples and population-based samples, which is "reassuring for those who have little choice but to rely on cheaper convenience samples" (Mullinix et al., 2015, p. 123). This being said, there is also work strengthening the view that non-population based sampling is problematic also for experimental conclusions (Mutz, 2011; see also Yeager et al., 2011). Given that the use of a population-based sample is beyond the scope of this thesis, the MTurk infrastructure provide an effective way to draw causal inferences on a sample of US citizens.

850 participants were recruited from MTurk on 8 April 2019. To safeguard the data I decided to exclude observations from repeated IP addresses as well as non-American GPS coordinates[1], information that was provided from the survey tool. After this procedure, 747 respondents remained in the dataset. As the study focuses on people identifying with a political party, the analysis was concentrated to respondents identifying as Democrats or Republicans (n = 554).[2]

Finding a suitable policy to study on American subjects was not easy given the deep political polarization on climate issues. I took inspiration from Druckman et al. (2013) and sought for issues that: 1) had received recent attention, 2) where public opinion due to the policy's recent introduction may not be very crystallized, and 3) where parties or its

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[1] This procedure is conducted in light of recent alarms of contaminated survey data on MTurk, mainly generated by bots that produce automatic survey responses (Kennedy et al., 2018). To try to prevent potential bots I included a Captcha provided from the survey software Qualtrics. A Captcha is a small test that is easy for humans to solve and is commonly used to separate humans from bots.

[2] See the results chapter for a separate analysis of Independents (n=193).

representatives do not hold dramatically different positions. The last point is difficult to adjust for given abovementioned caveats, why I looked for a climate policy where representatives from both parties had sponsored the policy when introduced in the House of Representatives.

I opted for a policy initiative from autumn 2018, that suggested the introduction of a carbon tax at the federal level - the "Energy Innovation and Carbon Dividend Act" (EICDA). EICDA was introduced by two Republicans and three Democrats, the first bipartisan carbon pricing proposal introduced in the House of Representatives in nearly a decade (Columbia University, 2018). The policy would charge fossil fuel companies with $15 per ton carbon emitted, a fee that would increase by $10 every year afterward, a much steeper increase in comparison to other carbon pricing proposals (Columbia University, 2018). The tax revenue would be distributed back to households in form of dividends to cover expected increases in utility costs. While similar policies have faced staunch opposition from Republican party elites, EICDA was initiated by members of the bipartisan Climate Solutions Caucus, consisting of 45 Republicans and 45 Democrats, and included provisions specifically aimed for attracting Republican support. The bill was applauded by environmental groups as well as the Republican-leaning Climate Leadership Council (The Hill, 2018).

Procedure

In a next step I designed the experimental conditions. After reading initial information about the motivation of the study and answering questions on standard social variables as well as on party identification[3], subjects were randomly assigned[4] into one of four different groups. Group 1 constituted the control condition, where subjects read a short text about a recent climate policy proposal that had been introduced by legislators.

"Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by politicians to put a national price on carbon."

Subjects in the control condition received only this information, followed by a measure of the dependent variable described below. In group 2, subjects read the same message as group 1, but were also provided with policy information. To ensure external validity and to avoid deception, I opted for real policy information retrieved from a non-partisan source – Center on

[3] See appendix D for exact formulations of these questions in the survey.
[4] I programmed the two surveys in the survey software program Qualtrics. Qualtrics has a built-in randomization tool that allows for random assignment between experimental conditions. See appendix C for detailed randomization checks.

Global Energy Policy at Columbia University (Columbia University, 2018). Shortly after EICDA was introduced in the House of Representatives, the Centre assessed EICDA's expected environmental contribution and provided estimates of EICDA's expected impact on carbon emissions and energy market structures. In group 2, subjects read the following message (policy information in bold here for presentational purposes):

"Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by politicians to put a national price on carbon. **The bill would set a carbon price for fossil fuel companies at \$15 per ton of carbon emissions and increasing the price by \$10 every year, while 100% of the revenues would be returned to American households. According to research, the policy would reduce US carbon emissions by 45 percent by 2030 and up to 80 percent by 2050, compared to 2015, as well as abolish the use of coal in the US electricity system by 2030**."

Subjects in group 3 and 4 read the same message as subjects in group 2, but also received party cues, operationalized here as information that the policy had been supported by Democrats or Republicans. Subjects in the Republican cue condition (group 3) read that the policy was supported by Republicans, while subjects in the Democrat cue condition (group 4) read that the policy was supported by Democrats. While I randomly assign respondents, natural variation in the subjects' partisan orientation make it possible to discern the effects of party cues when policy information is held constant and to test the hypotheses. Will Democrats who read a party endorsement become more positive when the policy is supported by Democrats (H1) and less supportive when it is supported by Republicans (H2)? In a similar way, will Republicans who read a Republican party cue become more supportive of the policy when they see that their own party supports it (H1) and less so when the policy is supported by Democrats (H2)? Using different party cues and sustaining a natural variation of subject's party identification ensure a test for *which* parties that can lead public opinion and how the provision of in- and out-party cues affect policy support (Nicholson, 2012). In groups 3 and 4, subjects read the following message (party cues in bold for presentational purposes):

"Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by **[Republicans/Democrats]** to put a national price on carbon. The bill would set a carbon price for fossil fuel companies at \$15 per ton of carbon emissions and increasing the price by \$10 every year, while 100% of the revenues would be returned to American households. According to research the policy, **[that is supported by Republicans/Democrats],** would reduce US carbon emissions by 45 percent by 2030 and up to 80 percent by 2050, compared to 2015, as well as abolish the use of coal in the US electricity system by 2030."

Study 2: Sweden

I designed a similar survey experiment for the Swedish study. As MTurk is primarily a platform for US participants where the amount of Swedish respondents is minimal (Pavlick et al., 2014), I used a different data collection strategy. Instead, the Swedish survey was distributed on social media (Facebook and Twitter) and through email among students at the Department of Political Science and Department of Psychology at the University of Gothenburg.

Using mainly students as opt-in samples is an issue of debate in the literature given the quest of performing experimental studies with high external validity. While many experimental studies use student samples out of convenience, the generalizability of their results is often discussed and have faced skepticism, but also praise by previous research (see Druckman & Kam, 2009 for a review). 298 Swedish respondents were recruited between 8th April and 26th April 2019. 269 persons completed the survey. As with the American sample, I excluded respondents that did not identify with a party (5 respondents) from further analysis.

The climate policy in focus for the Swedish study was a recently introduced tax system for new cars, implemented by the Social Democrat/Green Party coalition government as of 1 July 2018 – the bonus-malus policy. Bonus-malus is a financial instrument where the more environmentally friendly options within a group of products are subsidized by the more environmentally harmful product options (Nationalencyklopedin, 2018). The policy is part of the Swedish government's efforts to reduce emissions in the transport sector, which is responsible for one third of total emissions in Sweden (Regeringskansliet, 2017). The system entails that new vehicles with low CO_2 emissions (e.g. electric cars) will qualify for a bonus at purchase, while new vehicles with high CO_2 emissions (e.g. petrol and diesel cars) will be taxed at a higher rate for the first three years.

The choice of policy in the Swedish case was guided by the same criteria as in the US study. The bonus-malus policy was one of the few concrete climate policy issues discussed in the 2018 election campaign, making the issue relatively salient in the political debate. Despite this, a majority of Swedes (63%) reported to not understand the bonus-malus concept in the election campaign (Novus, 2018) This indicates that public opinion on the issue may not be very crystallized, meaning that there is room for movement in peoples' policy opinions. Moreover, the policy constitutes a "carrot and stick" design, which could be credibly perceived as a policy approach where parties on both sides of the left-right political spectrum could be seen as policy supporters. While both the Red-Greens and most right-wing opposition parties expressed overall support for the policy, the right-wing parties simultaneously criticized the policy for being too harsh on high polluting vehicles, not being technique neutral and in its

present form have limited climate impact (Riksdagen, 2016). Last, by opting for a policy that has been supported on both sides of the political aisle I avoided the ethical problem by presenting subjects with untrue or deceptive information or asking subjects to consider a hypothetical scenario (Desposato, 2018).

Procedure

In the Swedish study, subjects first read initial information about the motivation of the study and answered questions on standard social variables as well as party identification[5]. After that, subjects were randomly assigned into one of four experimental groups. Group 1 constituted the control condition, where subjects read a short text about a recent climate policy proposal that had been introduced by legislators.

"Next, I am interested in your opinion on a recent climate policy proposal. Some politicians have proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions."

Subjects in the control condition received only this information, followed by a measure of the dependent variable described below. Subjects randomly assigned to group 2 read the same above message as group 1 but were also provided with policy information. Again, inspired by previous work (Rhodes et al., 2014), I opted for policy information retrieved from public investigations, government agencies and independent research organizations that assessed the policy's estimated environmental impacts.[6] The information provided for subjects in group 2 read the following (policy information in bold for presentational purposes):

"Next, I am interested in your opinion on a recent climate policy proposal. Some politicians have proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions. **According to the proposal, new cars with no or relatively low carbon emissions will be rewarded with a bonus of maximum SEK 60,000, while new petrol and diesel cars with relatively high carbon emissions will receive an increased vehicle tax during the first three years. According to research, the proposal will reduce emissions from new cars at a faster rate than before and reduce carbon dioxide emissions by four million tonnes and nitrogen oxide emissions by three thousand tonnes by 2030**."

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[5] See appendix E/F for exact formulations of these questions in the survey.

[6] The information was collected from studies conducted by the Swedish Transport Agency (Transportstyrelsen), the Swedish Environmental Protection Agency (Naturvårdsverket, 2017), the Swedish Environmental Research Institute (Åström et al., 2016), as well as the governmental investigation for the policy (SOU 2016:33, 2016).

As in the US study, subjects randomly assigned to groups 3 and 4 received party cues. In the Swedish study, subjects in these groups read either a Social Democratic cue or a Moderate Party cue, where either party indicated their policy support. I focused on cues from the two major parties in Swedish politics. Even though Sweden is a multi-party system with eight parties currently represented in parliament, the two parties typically gain between one-third and one-fifth of the votes in national elections. Moreover, they are traditionally the leading parties in government coalitions, which is the key player in shaping a country's climate policy agenda. The two parties have for decades been the main competitors in Swedish politics and their longevity have provided their party labels with a clear reputational value that makes more established parties more able to lead public opinion (Brader et al., 2013).

Using the major government and opposition party makes sense given recent changes in Swedish politics, where the centre-right Alliance has split at the national level after the Centre Party and the Liberals entered a budget cooperation with the Social Democrat/Green Party government coalition. Moreover, using cues from the major parties on different sides of the left-right political spectrum provides an experimental advantage. If we find similar effects of party cues regardless of party sponsor, it suggests that party cue effects are not limited to parties with a specific ideological profile and that parties with different policy reputations on climate issues can lead public opinion in a more positive direction (Bisgaard & Slothuus, 2018).

As in the US study, it also makes it possible to study the expectation that people of different partisan stripes react differently to different cues. Will left-wing[7] (right-wing) party supporters process the information and become more supportive of the policy when reading that the Social Democrats (the Moderates) support the policy (H1)? And in contrast, will they reject the informational content and be less supportive when the policy is supported by the Moderates (the Social Democrats) (H2)?

Subjects in groups 3 and 4 read the following message:

"Next, I am interested in your opinion on a recent climate policy proposal. **[The Moderates/The Social Democrats]** has proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions. According to the proposal, new cars with no or relatively low carbon emissions will be

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[7] Despite the abovementioned split of the Alliance at the national level, I choose to mainly present the Swedish results clustered by left-wing party supporters (the Social Democrats, the Left Party, the Green Party) and right-wing party supporters (the Moderates, the Centre Party, the Christian Democrats, the Liberals). I do this in light of the relative small sample size in the Swedish study, but also that recent studies confirm the presence of "bloc identification", where "the existence of multiple parties and coalitions may blur loyalty to a single party" (Huddy et al., 2018, p. 190).

rewarded with a bonus of maximum SEK 60,000, while new petrol and diesel cars with relatively high carbon emissions will receive an increased vehicle tax during the first three years. According to research the proposal, **[that is supported by the Moderates/the Social Democrats],** will reduce emissions from new cars at a faster rate than before and reduce carbon dioxide emissions by four million tonnes and nitrogen oxide emissions by three thousand tonnes by 2030."

Table 1 outlines the four groups included in the two survey experiments and the stimuli the different experimental groups received. As described above, group 1 constituted the control condition where subjects receive neither a party cue nor policy information. Group 2 received no party cue but policy information about the policy's estimated effects, whereas groups 3 and 4 received both cues from political parties and policy information. As I focus on whether the inclusion of party cues make people more supportive of climate policies, groups 3 and 4 provide a possibility to discern if the combined information (party cue + policy information) significantly increase and/or decrease policy support compared to groups 1 and 2.

Table 1: Experimental treatments and groups

	Group 1 (control)	Group 2	Group 3	Group 4
No cue or information	x			
Policy information only		x		
Right party cue + policy information			x	
Left party cue + policy information				x

In order to draw valid conclusions about treatment effects we need to assess the necessary statistical power, i.e. the likelihood to reject the null hypothesis that no systematic differences exist between the experimental groups. As a standard reference point in the literature is 90% statistical power (Sundell, 2012), the fulfillment of a small effect size ($\eta 2 = .02$ (Cohen, 1992)) would require a recruitment of at least 230 respondents in both experiments, a number well above a minimum threshold for meaningful mean comparisons in experimental studies (Esaiasson et al., 2017). The power analysis and minimum sample size was calculated using G* Power analysis 3.1, a commonly used power analysis software tool (Faul et al., 2007).

I performed a randomization check for the US and Swedish studies to ensure that there was no unwarranted variation in the four groups that was not related to the experimental stimuli. The results from repeated one-way ANOVAs (see tables in appendix C) found that all F-ratios were small and insignificant, besides for ideological orientation in the US sample (p=0.029). Overall however, there were no systematic errors in the group assignment which strengthen the internal validity of my experiments.

In terms of reliability, the Swedish sample was rather low and showed that approximately three quarters of the sample identified with one of the three red-green parties. While this aptly illustrates the potential hazards of self-selected convenience samples it simultaneously indicates that the results among Swedish right-wing respondents should be treated more cautiously relative to the ones in the American study. A call for restraint is therefore in order when assessing the Swedish results.

Measures

In the pre-treatment survey, I followed previous work from the US by measuring party identification in two ways. The first measure simply asked subjects if they identified themselves as a Democrat, a Republican, or an Independent (0=Democrat, 1=Republican, 2=Independent). To capture the level of attachment to their respective party, subjects also responded to a 7-point Likert scale that asked, "What option on the scale best describes your party identification?" where 1 = "Strong Democrat" and 7 = "Strong Republican", grouping leaning partisans and partisans together as previous work have found them to behave similarly (e.g. Bullock, 2011; Levendusky, 2010). Ideology was measured with a 7-point scale ranging from 1 = "Very liberal" to 7 = "Very conservative". As Sweden is a multi-party system, I measured party identification in the Swedish study by asking subjects what party they feel closest, as well as their level of attachment to that party (1 = Not very closely, 2 = Somewhat closely, 3 = Very closely), while ideology ranged from 1 = "Clearly to the left" to 10 = "Clearly to the right".

Since any experiment that concerns party cues face the risk of priming party identification on subjects, i.e. that pre-treatment survey questions about party identification make people base their opinions on that identification (Druckman et al., 2013), the questions on the respondent's political leanings were asked first in the survey, followed by standard demographic variables that tend to influence attitudes, such as gender, age, income and education level (Montgomery et al., 2018).

Appropriate post-treatment measures were presented to subjects immediately after the experimental treatments in the two studies. My central dependent variable, climate policy support, was operationalized straightforwardly. Subjects in the American study were asked: "Given the information you just read, what is your opinion about the Energy Innovation and Carbon Dividend Act?". Subjects in the Swedish study were asked: "Given the information you just read, what is your opinion about the bonus-malus policy for new cars?".

Subjects indicated their support on a 7-point scale ranging from 1 = "strongly oppose" to 7 = "strongly support" (4 = "Neither oppose nor support"). The dependent variable mimic outcome variables used in previous studies (e.g. Bolsen et al., 2014). The survey was ended by a control question to see whether subjects had paid attention to the text. The question asked they if the policy they just read about was supported by any political party. This question helped me discern whether policy support in the four groups differed between those who responded correctly to the control question and those who did not. The results from such an analysis found no differences between respondents that answered correctly on the attention question and respondents who did not, which strengthen the reliability of my findings (Montgomery et al., 2018).

I use ANOVA to discern whether the four experimental groups in my two experiments have any mean differences in policy support. ANOVA uses an F-test to test for differences between more than two independent means (Mehmetoglu & Jakobsen 2017: 40). Since ANOVA only indicate if a group is significantly different from another, I use a Tukey post-hoc test to discern which of the four groups that have significantly different means. In a further analysis, I use OLS regressions with interaction terms to graphically display how citizens react to in- and out-party cues.

Ethical considerations

An important aspect of my experimental studies concerns the ethics. Empirical examinations of citizen attitudes towards social science experiments show that citizens do find survey experiments rather unproblematic, but at the same time express more opposition to experimental participation without having expressed consent (Desposato, 2018; Naurin & Öhberg, 2019). To escape any potential ethical violations, I opt for presenting real policy information that has been generated by politically unaffiliated sources as well as providing party cues that do not decept people into taking policy considerations under the influence of false

party positions. In this way I not only minimize potential ethical issues but also strengthen the study's external validity and empirical contribution.

Another ethical aspect concerns the use of the MTurk platform, as sub-minimum wage income from the site is the only source of income for many workers (Pew Research Center, 2016). While MTurk provides an excellent platform for social scientists to collect data in a cheap and relatively effortless way, scholars have faced criticism for being too cheap with their payments. An empirical study found the median hourly wage for MTurk workers to be approximately $2/hour, while only four percent of MTurk workers earned more than the federal minimum income (Hara et al., 2017). To ensure that survey respondents were appropriately paid, I set the payment at $1.20 per respondent, which I found reasonable given the short amount of time to finish the survey (around 3 minutes) and the present US federal minimum wage level ($7.25/hour) (United States Department of Labor, 2018).

Results

Study 1: USA

Figure 1 display the means in support for the carbon tax between respondents identifying as Democrats or Republicans (n = 554)[8]. Democrats in all experiment groups were significantly more positive to a carbon tax than Republicans. However, the results in this study did not provide support for H1. Starting with Democrats, the means displayed in figure 1 find that in-party cues had no positive effects on policy support. The mean for Democrats in who got in-party cues and policy information was 5.59, while the mean for Democrats who got only policy information was 5.67. The lower mean in the in-party group compared to the information only group goes against theoretical expectations.

A Tukey post-hoc test[9] analyzing which groups that significantly differ from each other reveal that mean differences between the in-party cue group and information only group were statistically insignificant (t=-0.36, p=0.984). While no statistically significant differences emerged, the means found that Democrats in groups 2 (information) and 4 (in-party cue and information) had approximately half a scale step higher policy support compared to Democrats in the control group. In fact, the mean difference between the control group and the information only group balances on the edge of statistical significance (t=2.48, p=0.064). Thus, while Democrats responded rather positively to policy information, in-party cues in combination with policy details did not translate into higher policy support among these party supporters.

Turning to Republicans, the bars for Republican subjects in figure 1 display strikingly small mean differences between the four experimental groups. These results provide further evidence of no support for H1 in this study. Republicans who got in-party cues and policy information had a higher mean (4.08) than Republicans who only got policy information (3.98), but the differences were not statistically significant (t=0.28, p=0.992). Thus, the results also among Republicans speak against the expectation that in-party cues and policy information enhance climate policy support. It was also the case that Republicans in the control group had equal mean tax support as Republicans getting both in-party cues and information. Thus, the findings among both Democrats and Republicans find no support for H1 in the US case.

[8] I reran the analyses with only those respondents who answered correctly on the attention check question (n = 458). The results from the separate analyses were not different from the results presented here.

[9] This post-hoc test is done throughout the results section where differences between experimental groups are analyzed. For full tables, see appendix A and B for results from both USA and Sweden.

Turning to H2, we focus on results among partisans that read policy information supported by out-parties. Democrats reading that the policy was endorsed by Republicans had a lower mean (5.19) compared to Democrats who got policy information without a party endorsement (5.67). Here, the difference balances on the edge of statistical significance if we would use a 90% significance level (t=-2.29, p=0.103). Also with Republicans, reading policy information supported by the out-party resulted in a lower mean (3.83) than reading policy information alone (3.98), but here the differences were clearly insignificant (t=-0.45, p=0.970).

Taken together, the results show indications of lowering policy support when the policy is sponsored by out-parties. This is especially the case among Democrats, where mean policy support in the out-party group (group 3) is half a scale step lower than in the information group (group 2) and almost equal to the support in the control group. Again, the low variations among Republicans however make such indications less clear. However, the overall insignificant differences for both Democrats and Republicans provide no support in my results for H2 in the US case.
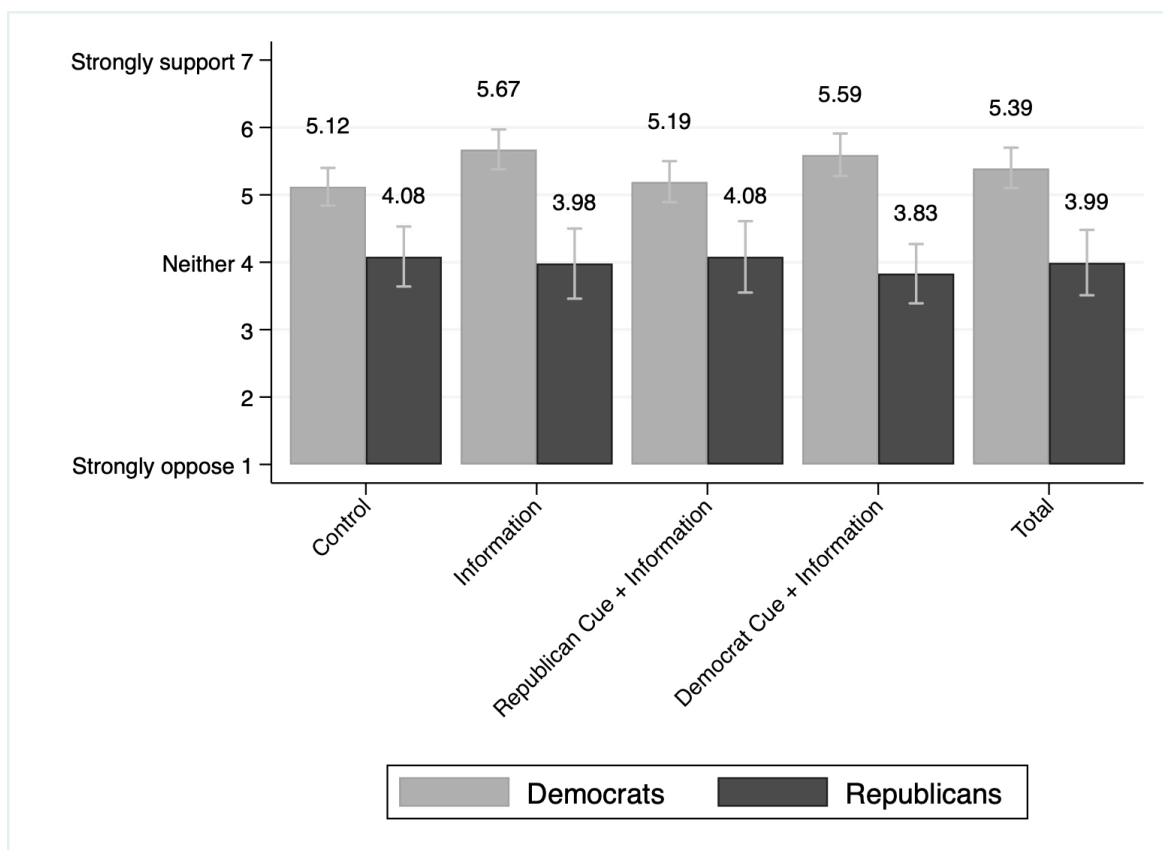
Figure 1: Support for the Energy Innovation and Carbon Dividend Act divided by respondents identifying as Democrats and Republicans. The question asked was: *Given the information you just read, what is your opinion about the Energy Innovation and Carbon Dividend Act?* Error bars represent significant level at 0.05.

Figure 2 displays the results of OLS regressions, which presents the mean policy support conditional on party identification and serves to graphically summarize the main takeaways from the two hypotheses. As indicated by the predicted lines, the figure shows that Democrats and Republicans show small indications of higher policy support when the policy is being endorsed by the in-party, while policy support from the out-party show indication of lowering support among respondents from both parties. However, the changes within respective party are insignificant.[10] In sum, as no significant effects emerged of in- and out-party cues on climate policy support, the results found in the US case provided no support in this study for either of my two hypotheses.[11]

The Eta squared was 0.004, meaning that 0,4 percent of the total variance in the policy support is explained by group differences, meaning that the experimental stimulus had no effect on the variance in climate policy support.

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[10] Same patterns emerged when separating respondents at levels of party attachment, i.e. how strongly they identified with their respective party. The analyses indicated that strong partisans responded more positively to in-party cues and more negatively to out-party cues compared to weak partisans, but the differences were insignificant and thus do not alter the main takeaways from the results.

[11] Although my study focuses on people identifying with political parties, I controlled the robustness of my findings by also analyzing subjects identifying as Independents (n=193). The results found that neither cues from Republicans (mean: 5.32) nor Democrats (mean: 4.78) made Independents significantly more supportive of the policy compared to Independents who only got policy information (mean: 4.60). This finding is in line with results presented for partisan identifiers, but the substantially higher support when the policy got Republican support is intriguing. Moreover, Independents with a Republican cue were significantly more positive to the policy compared to Independents in the control group (mean: 4.30) (t=3.06, p=0.013). Thus, it might be the case that non-partisans without deeply rooted party attachments are more affected by "surprising" sources of climate-related information that may have a stronger persuasive effect on opinions (Benegal & Scruggs, 2018).
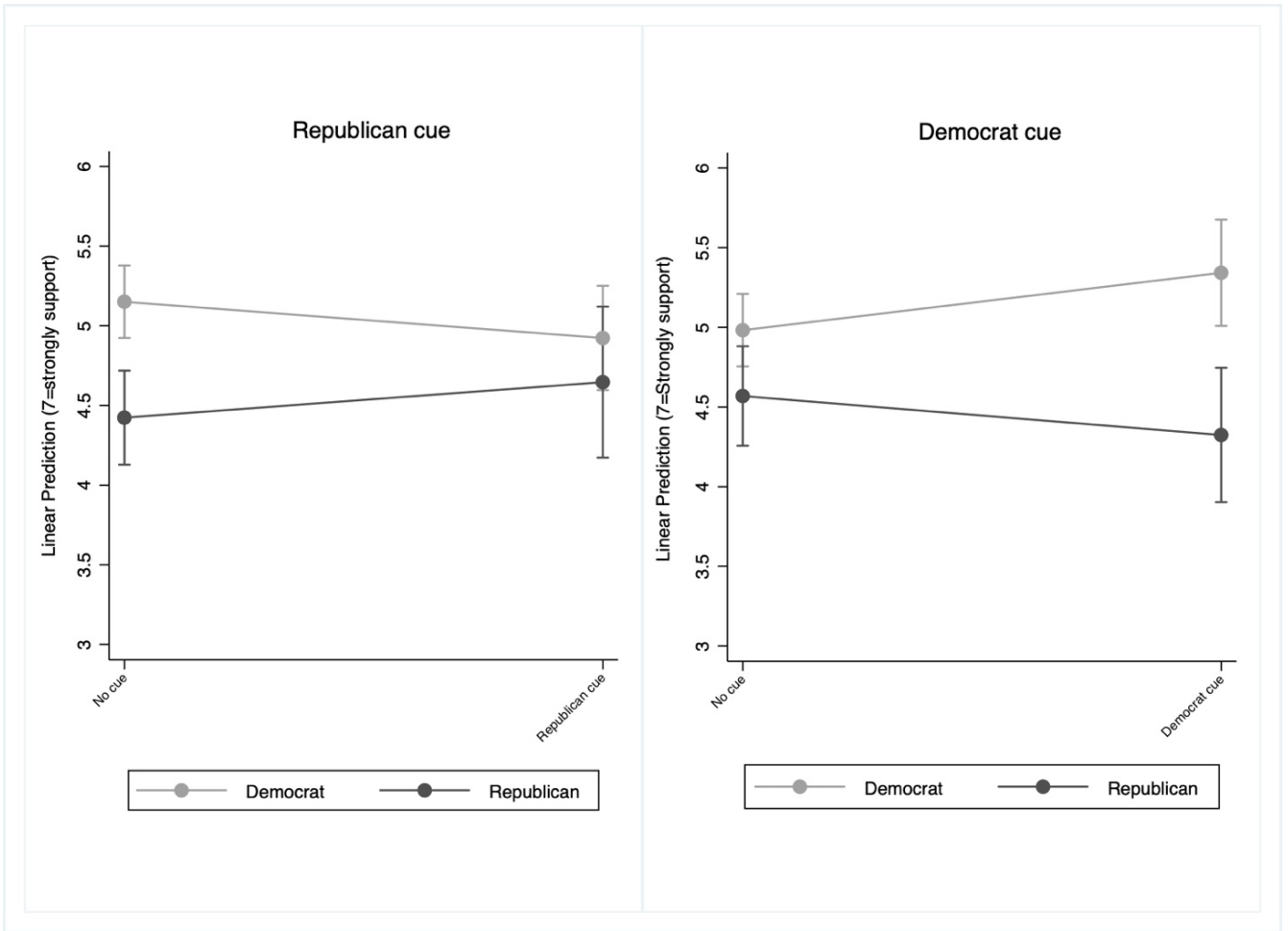
Figure 2: Interaction plot where support for the Energy Innovation and Carbon Dividend Act is divided by respondents identifying as Democrats or Republicans. Analyses are done under control for ideological orientation, gender, age, education and income. Regression tables and coding of control variables are found in appendix. Error bars represent significant level at 0.05.

Study 2: Sweden

To test my expectations in different contexts I designed a second study, which focuses on Sweden and the recently debated bonus-malus tax system for new cars.[12] Also in the Swedish case, results displayed no support for H1. Left-wing party supporters[13] reading that the policy was supported by Social Democrats had a higher mean (5.53) than leftists reading only reading policy information (5.06), a rather substantial but statistically insignificant difference (t=1.52, p=0.427). The same pattern emerged in a separate analysis of Social Democratic identifiers only.[14] Social Democrats who got in-party cues and policy information had a higher mean (5.38) than Social Democrats who got policy information only (4.71), but this was also a statistically insignificant difference (t=1.51, p=0.432). Notable is that left-wing respondents in the control group had a higher mean (5.34) than left-wing respondents in the information only group and almost an equal mean as the group who read in-party cues and policy information. The differences were not substantive and insignificant, indicating a low effect of my treatments.

Among right-wing respondents, the patterns held when they read in-party cues from the Moderate Party.[15] [16] Among supporters of the four right-wing parties, no significant effects of party cues emerged on policy support. The mean for right-wing party supporters who got in-party cue and policy information was substantively higher (4.50) than the mean for respondents who got policy information (3.75), but insignificant (t=1.00, p=0.751). The highest mean support was however found in the control group (4.80), further indicating that the results were not in the expected direction. As observed also in the US case, this result means that in-party cues in combination with policy information did not result in a significantly higher policy support as hypothesized – a clear sign that my results did not support H1 in the Swedish case.

Turning to H2, the results among Swedish respondents find no support for this. Left-wing party supporters in the Moderate cue condition had a lower mean (4.49) than left-wing

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[12] I reran the analyses with only those respondents who answered correctly on the attention check question (n = 240). The results from the separate analyses were not different from the results presented here.

[13] Here I refer to supporters of the three Red-Green parties with parliamentary representation in Sweden: The Social Democrats, the Left Party and the Green Party.

[14] I did this given the relative high number of self-identified Social Democrats in the sample (n = 110). I did not find a similar analysis for Moderates meaningful given the low number of Moderate identifiers (n = 16) and is therefore not reported.

[15] Here I refer to the four right-wing parties in the former Alliance: The Moderates, the Centre Party, the Christian Democrats and the Liberals. An additional analysis was performed including the fifth right-wing party in Swedish politics: The Sweden Democrats. The results from these analyses did not alter the results presented here.

[16] As the Alliance recently seized to exist at the national level when the liberal parties (the Centre Party & the Liberals) entered a budget cooperation with the Social Democrat/Green Party government coalition, I also performed analyses with the liberal parties and the conservative parties (the Moderates and the Christian Democrats) separately. While the liberal parties showed a higher mean score (5.28) compared to the conservative parties (3.90), the direction of results stayed the same and mean differences between groups remained insignificant, thus did not alter the results presented here.

supporters who only read policy information (5.06). While this is half a scale step difference in policy support and a considerably lower mean, also in comparison with the control group, it is insignificant (t=-1.84, p=0.260). Among right-wing supporters, the results surprisingly went in the opposite direction than expected. Right-wing party supporters had a substantively higher mean when the policy was endorsed by Social Democrats (4.69) than when only reading policy information (3.75). Despite a variation of almost one scale step between the groups and in clear violation with theoretical expectations, also these differences were insignificant (t=1.25, p=0.599). However, the problems with the Swedish sample is illustrated by the large confidence intervals in figure 3. The small sample size, particularly among right-wing subjects, did not provide enough statistical power to draw any strong conclusions and makes my results very uncertain.
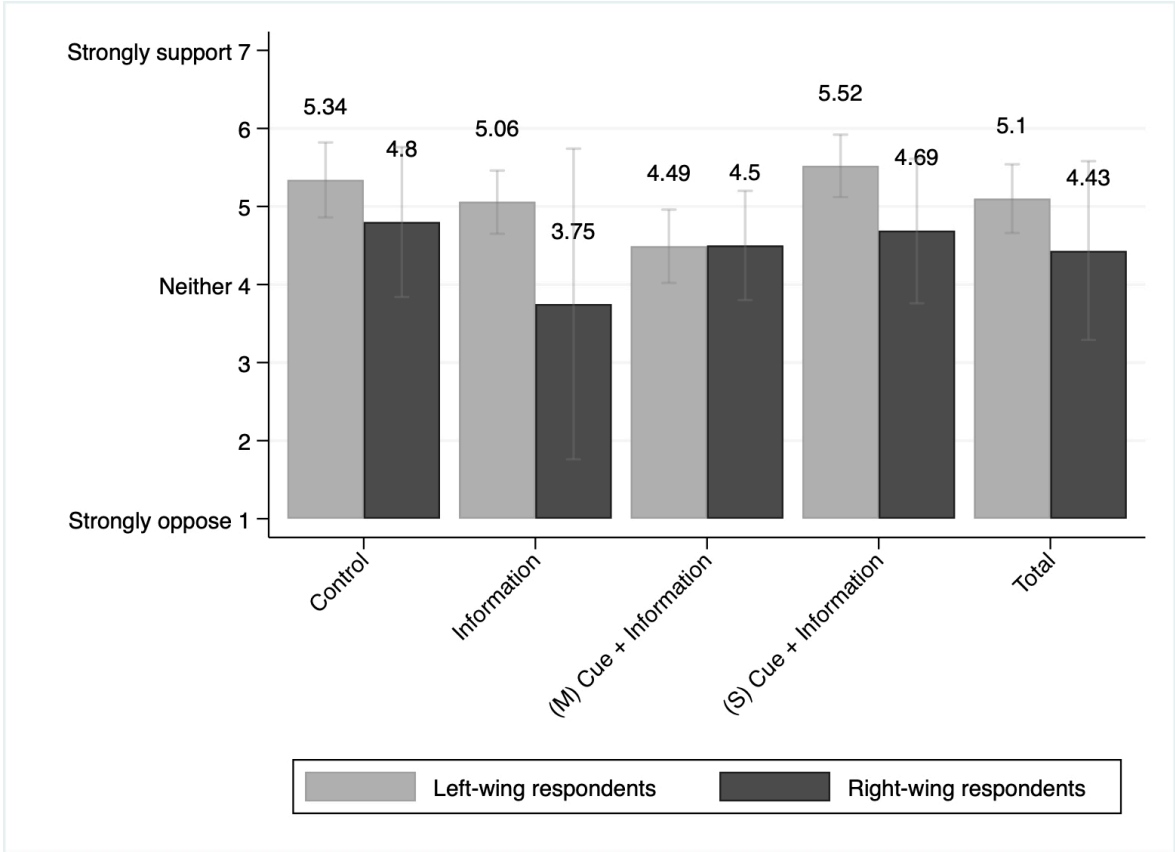
Figure 3: Support for the bonus-malus policy divided by left-wing party identifiers (the Left Party, the Social Democrats, the Green Party) and right-wing party identifiers (the Centre Party, the Liberals, the Moderate Party, the Christian Democrats). The question asked was (translated into English): *Given the information you just read, what is your opinion about introducing a bonus-malus policy for new cars?* Error bars represent significant level at 0.05.

The differences between left-wing and right-wing party supporters when provided with cues from different parties are displayed by the interaction plot in figure 4. As the abovementioned results make clear, the results indicate that left-wing respondents behave as expected in response to both types of cues, but that right-wing respondents behave opposite to expectations. However, the low number of right-wing respondents and large confidence intervals within this group call for caution when interpreting the results.

The Eta squared is 0.04, meaning that 4 percent of the total variance in the policy support is explained by group differences, meaning that the experimental stimulus had a small effect on the variance in climate policy support. Yet again, the low n among right-wing party identifiers call for a high level of caution when making conclusions from my results.
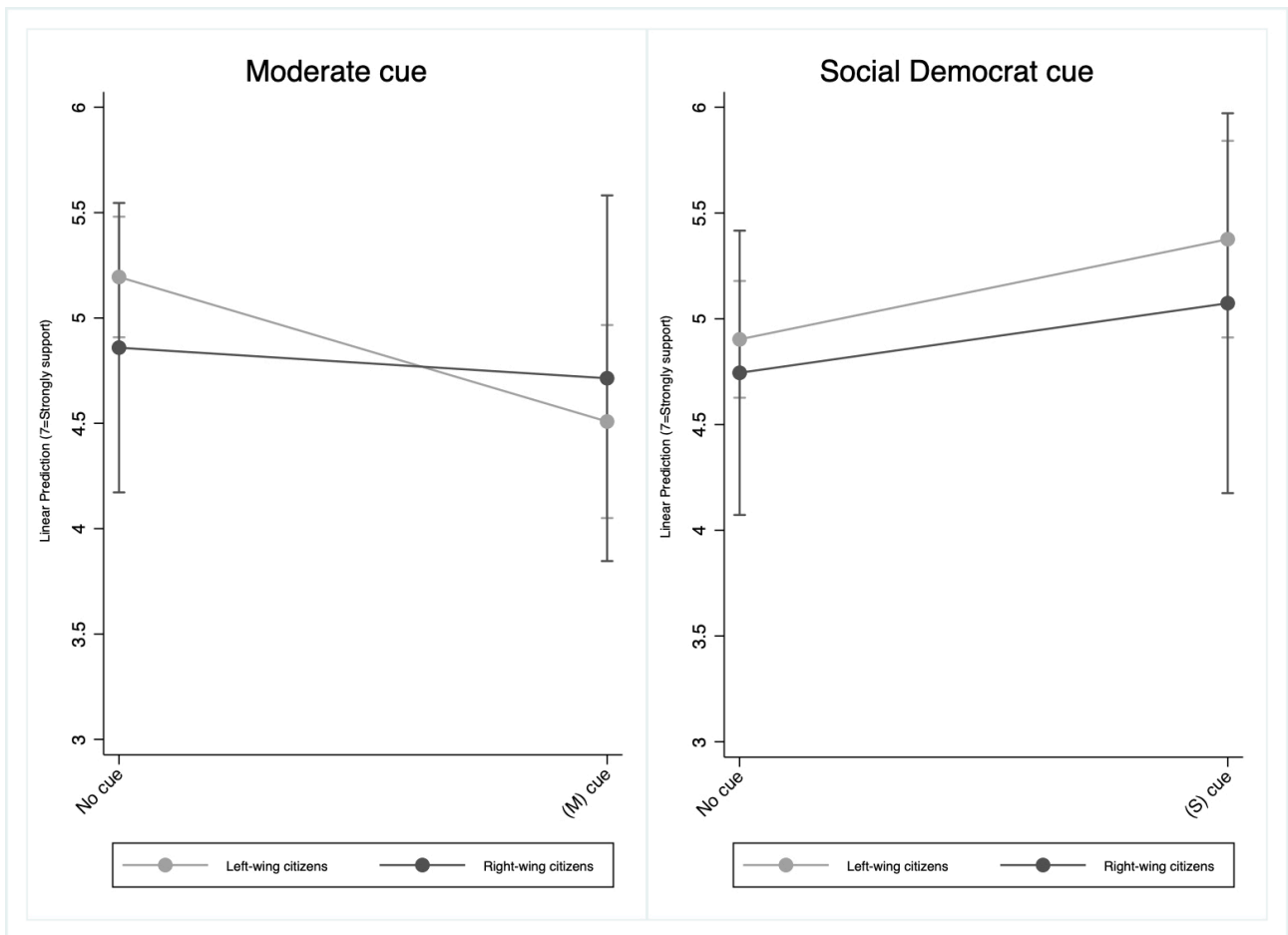
Figure 4: Interaction plot where support for the bonus-malus policy is divided by respondents identifying as left-wing and right-wing party supporters. Analyses are done under control for ideological orientation, gender, age, education and income. Regression tables and coding of control variables are found in appendix. Error bars represent significant level at 0.05.

Discussion

This study has discussed the potential for political parties to lead public opinion and shape citizen preferences for climate policies. As political parties are central actors in the formation of domestic climate policy, their potential for shaping public opinion and increasing public support for policies aimed at addressing climate change is an important question for democratic societies when building robust climate mitigation policies. I addressed a limitation in previous research by bringing in the key domestic political actors in the study of how citizens shape their climate policy opinions.

Through survey experiments I investigated how party cues and policy information affect opinions of two recent climate policy initiatives in USA and Sweden. Experimental findings did not find that party cues in combination with policy information increased citizens' support for policies aimed at mitigating climate change. In both studies, no significant increases in climate policy support were found among citizens who read policy information about a policy that was supported by their political party compared to citizens who only read policy information. Moreover, when reading policy information about a policy endorsed by an out-party citizens showed indication of lowering policy support. The fact that I find consistent evidence across the two different political contexts studied here is reassuring. But as neither of my two hypotheses were supported in this study, the results contradict abundant research findings suggesting elite rhetoric's large influence on policy opinions.

The results from this thesis therefore dampens the hopes potentially put on the possibilities of parties to lead environmental opinion. It is ultimately political parties that are in control of the legislative and governmental powers to convert citizens' demands into political action. The evidence presented here is not encouraging for political parties' potential to increase public acceptance of concrete climate policy action. My results also raise the concern that not only do in-party cues not raise policy support much, but out-party cues show indication of lowering policy support. (cf. Nicholson, 2012).

The results must nonetheless be considered in light of the chosen sampling approach. All participants were self-recruited and the number of participants rather low, especially in the Swedish study. In light of the chosen data collection strategy and the big confidence intervals, which were prominent in the Swedish case, the results must be treated with caution. Since this thesis found its departure in the limited attention given by previous work to the role of political parties in citizens' climate policy attitudes, my results also demonstrate the need for

supplementary studies that test the robustness of my theoretical assumptions and empirical findings, preferably with population-based samples.

An important aspect raised in this study was how people of different partisan stripes respond to party cues and policy information. A question that arises from the results is to what extent people are affected by their perceptions of party credibility on climate issues. As the policies were related to climate and environment, a policy area in which left-leaning green or left parties typically possess issue ownership and take stronger positions in relation to climate change (Farstad, 2018), it may not be surprising that the results indicated stronger climate policy support among left-wing respondents than right-wing respondents. Among left-wing respondents in both studies (i.e. Democrats in the US), the absence of any significant effects of party cues compared to when receiving only policy information may indicate that left-wing respondents are not persuaded by party signaling on the climate but are rather positive to climate action nonetheless, as their relatively high means in both countries indicate.

Similar dynamics might be in play among right-wing respondents, who typically are less demanding of strong climate action and arguably need more persuasion to embrace more forceful climate policies. The null results among right-wing respondents indicate that they did not find the experimental stimulus convincing enough to become persuaded about the policies' usefulness, which might be attributed to the lack of information about the policies' economic consequences or clearer estimations of their effectiveness. Such information has elsewhere been shown to affect policy acceptance (Jagers et al., 2018). Further, increasing ideological polarization related to climate issues, especially in the US (Ehret et al., 2018; McCright & Dunlap, 2011), also begs the question whether political parties at all can mobilize stronger climate support among right-wing citizens. The current state of the political debate may simply make it too challenging for strong climate policies to be resolutely supported by right-wing political elites. This circumstance clearly dampens the potential for those political actors to lead their voters into embracing such policies.

Still, some caution is in order when drawing out the implications of the results. The discussion above call for scrutiny of my experimental design. I used comparatively week treatments in the variation of party cues and policy information. On the one hand this was deemed reasonable for preserving experimental realism and maintaining subjects' attention to my experimental vignettes, but clearly had limited impact on subjects. The cues stated that a party supported the policy, but neither any statements from party representatives nor arguments ("frames") in which the party further explained their policy position (Slothuus & de Vreese, 2010). As parties often make citizens aware of their policy positions by providing clear

arguments for them, an alternative operationalization of party cues that contained explanations of their position could more strongly have affected peoples' opinions.

It could also be the case that citizens respond differently to party cues in other formats than text. Reading a statement connected to a party label might stimulate negative feelings regardless of identification. Other forms of treatments, for instance by short ads or video clips where a party representative explain the party's policy position, may be alternative, fruitful operationalizations that might not stimulate potential negative feelings as much as written party labels. Moreover, as my choice of design did not control for any pre-treatment effects, respondents' pre-existing policy knowledge and opinions on the effectiveness of the two policies studied were not measured but is clearly a factor that people may take into consideration when they form climate policy opinions.

Conclusion

This thesis has investigated the potentials for political parties to lead public opinion on arguably the most important question facing contemporary societies: climate change policy. Two survey experiments were performed on citizens in USA and Sweden, two countries where political elites have undertaken distinctive approaches to climate change and climate mitigation policies.

Results found no support that political parties were able to lead citizens into becoming more accepting of policies aimed at mitigating climate change. In neither country my experiments found that citizens were more supportive of climate policies when they got in-party cues in combination with policy information compared to citizens who only got policy information. Moreover, when reading policy information about a policy endorsed by an out-party citizens showed indication of lowering policy support. The results from this study fall in line with previous studies that find relatively small effects of party cues on opinion formation (Boudreau & MacKenzie, 2014; Bullock, 2011).

This thesis contributes to a long-standing research field on political parties' influence on citizens' opinions. The findings presented in this thesis indicate that parties fail to lead public climate opinion in a more positive direction. As the consequences of climate change only recently have begun to cast its marks around the world, the effects of various mitigation policies at the governments' disposal are at best ambiguous. However, it remains the case that political parties should provide arguments to the electorate for the policies they find appropriate. In order to successfully lead public opinion, I believe political actors must make deeper reflections on how arguments in favor of policies aimed at confronting the challenges of climate change should be formulated. The question if and how political parties can channel a growing, but still rather abstract, public demand for climate action into support for concrete policies remains a dauting task for researchers and policymakers. Importantly, recent developments also raise the opposite question: can public opinion lead the political elites in the right direction and make political parties act to meet a growing public demand for climate action? In this regard, the short- and long-term effects of recent climate mobilizations on party behavior provide an interesting path for future research.

As mentioned in the discussion, further studies using population-based samples and more high-quality data collection techniques are needed for assessing the theoretical assumptions raised in this thesis. It is also the case that my theoretical assumptions could be more thoroughly empirically scrutinized with other experimental designs. I believe conjoint experiments (e.g. Dermont, 2019) is a methodologically fruitful way forward. As my information treatments

contained rather short descriptions of policy design and expected environmental benefits, a conjoint approach would enable an investigation of varieties in policy information and party cues by assessing which elements of a given policy and its source that influence support for the policy. This could help us understand what specific aspects of policy information that drive citizen opinions more in favor of such policies.

Additionally, an interesting avenue of further research concerns *which* parties are able to shape climate opinions. As the chosen party cues in the US were natural given its two-party system, the Swedish study contained cues from the two major parties; the Social Democrats and the Moderates. Those parties are neither main opponents on climate issues nor are environmental issues central to the parties' *raison d'être*. While climate leadership arguably is more needed from big political parties at the heart of domestic political space - who form governments and shape governments' agendas on climate politics - they may not be the parties that have mobilizing potential around these issues. Whether smaller parties with more distinct (pro-/anti)-environmental profiles, parties with higher levels of environmental issue ownership or if bipartisan cues, where several parties indicate their support for a particular policy action, would provide stronger effects on climate opinions should be pursued by future research.

Conclusively, the main takeaway from this thesis is that political parties face an uphill battle in leading public opinion into becoming more supportive of climate policy action. The results therefore call into question political parties' ability to lead environmental opinion. Hence, the potential for climate leadership by political parties is subject to challenging constraints that may affect the prospects of dealing with the daunting challenge of climate change.

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Appendix

Appendix A: Results from USA

Table 2: Descriptive statistics of climate policy support over different experimental groups (Democrats)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

Group	N	Mean	Std. dev.	Std. err	95% CI Lower	95% CI Upper
Control	75	5.12	1.22	.14	4.84	5.40
Information	85	5.67	1.36	.15	5.38	5.97
Right cue + information	94	5.19	1.48	.15	4.89	5.50
Left cue + information	86	5.59	1.47	.16	5.28	5.91
Total	340	5.39	1.70	.15	5.10	5.70

Table 3: ANOVA (Democrats)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

	Sum of Squares	df	Mean Square	F	Prob>F (sig)
Between Groups	19.392	3	6.463	3.30	0.0206
Within Groups	658.005	336	1.958		
Total	677.397	339	1.998		

Table 4: Tukey Post-Hoc test (Democrats)

	Mean difference	Std.Err	t	Sig	95% CI Lower	95% CI Upper
Experimental group						
Information vs Control	0.55	0.22	2.48	0.064	-0,02	1.12
Rep+Information vs Control	0.07	0.22	0.33	0.988	-0,49	0.63
Dem+Information vs Control	0.47	0.22	2.14	0.143	-0,98	1.04
Rep+Information vs Information	-0,48	0.21	-2,29	0.103	-1,02	0.06
Dem+Information vs Information	-0,08	0.21	-0,36	0.984	-0,63	0.48
Dem+Information vs Rep+Information	0.40	0.21	1.92	0.220	-0,14	0.94

Table 5: Descriptive statistics of climate policy support over different experimental groups (Republicans)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

Group	N	Mean	Std. dev.	Std. err	95% CI Lower	95% CI Upper
Control	49	4.08	1.55	.22	3.64	4.53
Information	54	3.98	1.90	.26	3.46	4.50
Right cue + information	51	4.08	1.87	.26	3.55	4.61
Left cue + information	60	3.83	1.71	.22	3.39	4.27
Total	214	3.99	1.75	.24	3.51	4.48

Table 6: ANOVA (Republicans)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

	Sum of Squares	df	Mean Square	F	Prob>F (sig)
Between Groups	2.283	3	0.761	0.24	0.865
Within Groups	654.674	210	3.117		
Total	656.957	213	3.084		

Table 7: Tukey Post-Hoc test (Republicans)

	Mean difference	Std.Err	t	Sig	95% CI Lower	95% CI Upper
Experimental group						
Information vs Control	-0,1	0.35	-0,29	0.992	-1	0.80
Rep+Information vs Control	0	0.35	-0,01	1.000	-0,92	0.91
Dem+Information vs Control	-0,25	0.34	-0,73	0.885	-1,13	0.63
Rep+Information vs Information	0,1	0.33	0.28	0.992	-0,8	0.99
Dem+Information vs Information	-0,15	0.33	-0,45	0.970	-1	0.71
Dem+Information vs Rep+Information	-0,25	0.34	-0,73	0.885	-1,16	0.63

Table 8 – OLS regression	Model 1	Model 2	Model 3	Model 4
Republican cue	-0.070 (0.164)	-0.137 (0.150)	-0.284 (0.188)	-0.228 (0.185)
Republican identifier		-1.416*** (0.136)	-1.519*** (0.157)	-0.728*** (0.218)
Republican cue x Republican identifier			**0.405 (0.313)**	**0.451 (0.308)**
Intercept	4.870*** (0.084)	5.435*** (0.094)	5.476*** (0.099)	6.217*** (0.373)
Observations	554	554	554	554
Adjusted R^2	-0.001	0.162	0.163	0.202
CONTROLS	NO	NO	NO	YES

Comments: Unstandardized beta-coefficients with standard errors in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. The variable "Republican identifier" indicates whether respondents identified with the Republican party (0=No, 1=Yes). Control variables included in model 4: ideological orientation, gender, age, education, income. All coefficients for the control variables (except ideological orientation) were insignificant.

Table 9 – OLS regression	Model 1	Model 2	Model 3	Model 4
Democrat cue	0.024	0.072	0.262	0.360
	(0.164)	(0.150)	(0.194)	(0.190)
Republican identifier		-1.413***	-1.285***	-0.413
		(0.136)	(0.159)	(0.228)
Democrat cue x Republican identifier			**-0.474**	**-0.605***
			(0.306)	**(0.302)**
Intercept	4.846***	5.379***	5.331***	6.106***
	(0.084)	(0.093)	(0.098)	(0.375)
Observations	554	554	554	554
Adjusted R^2	-0.002	0.161	0.163	0.205
CONTROLS	NO	NO	NO	YES

Comments: Unstandardized beta-coefficients with standard errors in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. The variable "Republican identifier" indicates whether respondents identified with the Republican party (0=No, 1=Yes). Control variables included in model 4: ideological orientation, gender, age, education, income. All coefficients for the control variables (except ideological orientation) were insignificant.

Appendix B: Results from Sweden

Table 10: Descriptive statistics of climate policy support over different experimental groups

(left-wing parties)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

Group	N	Mean	Std. dev.	Std. err	95% CI Lower	95% CI Upper
Control	50	5.34	1.70	.24	4.86	5.82
Information	53	5.06	1.46	.20	4.65	5.46
(M) cue + information	49	4.49	1.63	.23	4.02	4.96
(S) cue + information	52	5.52	1.43	.20	5.12	5.92
Total	204	5.10	1.56	.22	4.66	5.54

Table 11: ANOVA (left-wing parties)

What is your opinion about the Bonus-Malus policy? (1=Strongly oppose, 7=Strongly support)

	Sum of Squares	df	Mean Square	F	Prob>F (sig)
Between Groups	30.352	3	10.117	4.17	0.007
Within Groups	485.276	200	2.426		
Total	515.627	203	2.540		

Table 12: Tukey Post-Hoc test

(left-wing parties)

	Mean difference	Std.Err	t	Sig	95% CI Lower	95% CI Upper
Experimental group						
Information vs Control	-0,28	0.31	-0,92	0.793	-1,08	0.51
M+Information vs Control	-0,85	0.31	-2,72	0.036	-1,66	-0,04
S+Information vs Control	0.18	0.31	0,58	0.938	-0,62	0.98
M+Information vs Information	-0,57	0.31	-1,84	0.260	-1,37	0.23
S+Information vs Information	0.46	0.30	1,52	0.427	-0,33	1.25
S+Information vs M+Information	1.03	0.31	3,32	0.006	0.23	1.83

Table 13: Descriptive statistics of climate policy support over different experimental groups

(right-wing parties)

What is your opinion about the Energy Innovation and Carbon Dividend Act? (1=Strongly oppose, 7=Strongly support)

Group	N	Mean	Std. dev.	Std. err	95% CI Lower	95% CI Upper
Control	15	4.80	1.74	.45	3.84	5.76
Information	8	3.75	2.38	.84	1.76	5.74
(M) cue + information	16	4.50	1.32	.33	3.80	5.20
(S) cue + information	16	4.69	1.74	.44	3.76	5.61
Total	55	4.43	1.80	.52	3.29	5.58

Table 14: ANOVA (right-wing parties)

What is your opinion about the Bonus-Malus policy? (1=Strongly oppose, 7=Strongly support)

	Sum of Squares	df	Mean Square	F	Prob>F (sig)
Between Groups	6.372	3	2.124	0.71	0.553
Within Groups	153.338	51	3.006		
Total	159.709	54	2.958		

Table 15: Tukey Post-Hoc test

(right-wing parties)

	Mean difference	Std.Err	t	Sig	95% CI Lower	95% CI Upper
Experimental group						
Information vs Control	-1,05	0.76	-1,38	0.516	-3,07	0.97
M+Information vs Control	-0,3	0.62	-0,48	0.963	-1,96	1.36
S+Information vs Control	-1,13	0.62	-0,18	0.998	-1,77	1.54
M+Information vs Information	0,75	0.75	1.00	0.751	-1,24	2.74
S+Information vs Information	0,94	0.75	1.25	0.599	-1,06	2.93
S+Information vs M+Information	0,19	0.61	0.31	0.990	-1,44	1.82

Table 16 – OLS regression	Model 1	Model 2	Model 3	Model 4
Moderate cue	-0.657** (0.231)	-0.632** (0.230)	-0.813** (0.262)	-0.686* (0.268)
Right-wing identifier		-0.548* (0.243)	-0.765** (0.286)	-0.335 (0.419)
Moderate cue x Right-wing identifier			**0.775 (0.542)**	**0.541 (0.552)**
Intercept	5.149*** (0.116)	5.260*** (0.125)	5.303*** (0.128)	5.063*** (0.770)
Observations	259	259	259	259
Adjusted R^2	0.027	0.042	0.046	0.062
CONTROLS	NO	NO	NO	YES

Comments: Unstandardized beta-coefficients with standard errors in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. The variable "Right-wing identifier" indicates whether respondents identified with one of the four right-wing parties (0=No, 1=Yes). Control variables included in model 4: ideological orientation, gender, age, education, income. All coefficients for the control variables were insignificant.

Table 17 – OLS regression	Model 1	Model 2	Model 3	Model 4
Social Democrat cue	0.460* (0.230)	0.478* (0.228)	0.552* (0.259)	0.474 (0.259)
Right-wing identifier		-0.598* (0.245)	-0.506 (0.288)	-0.158 (0.401)
Social Democrat cue x Right-wing identifier			**-0.326 (0.544)**	**-0.145 (0.545)**
Intercept	4.864*** (0.118)	4.986*** (0.127)	4.967*** (0.131)	4.816*** (0.786)
Observations	259	259	259	259
Adjusted R^2	0.012	0.030	0.028	0.051
CONTROLS	NO	NO	NO	YES

Comments: Unstandardized beta-coefficients with standard errors in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. The variable "Right-wing identifier" indicates whether respondents identified with one of the four right-wing parties (0=No, 1=Yes). Control variables included in model 4: ideological orientation, gender, age, education, income. All coefficients for the control variables were insignificant.

Appendix C: Randomization check

Table 18: Randomization check (US sample)

Control factors	Group 1	Group 2	Group 3	Group 4	Grand mean	Sig	F
Party	0.40 (124)	0.39 (139)	0.35 (145)	0.41 (146)	0.39 (554)	0.931	0.01
Party attachment	3.31 (124)	3.40 (139)	3.40 (145)	3.65 (146)	3.45 (554)	0.110	1.74
Ideology	3.60 (124)	3.34 (139)	3.67 (145)	3.76 (146)	3.60 (554)	0.029	2.37
Gender	0.53 (124)	0.55 (139)	0.53 (145)	0.55 (146)	0.54 (554)	0.873	0.03
Age	3.93 (124)	3.80 (139)	4.03 (145)	3.92 (146)	3.92 (554)	0.399	1.03
Education	4.39 (124)	4.25 (139)	4.28 (145)	4.14 (146)	4.26 (554)	0.098	1.87
Income	3.66 (124)	4.00 (139)	3.98 (145)	4.04 (146)	3.93 (554)	0.581	0.79
Total N	124	139	145	146	554		

Comments: Table display mean scores with N in parentheses. Party: 0=Democrat, 1=Republican. Party attachment: 1=Strong Democrat, 2=Weak Democrat, 3=Lean Democrat, 4=Neither Democrat nor Republican, 5=Lean Republican, 6=Weak Republican, 7=Strong Republican. Ideology: 1=Very liberal, 2=Mostly liberal, 3=Somewhat liberal, 4=Neither liberal nor conservative, 5=Somewhat conservative, 6=Mostly conservative, 7=Very conservative. Gender: 0=Male, 1=Female, 2=Other. Age: 1=Under 18, 2=18-24, 3=25-34, 4=35-44, 5=45-54, 6=55-64, 7=65 or older. Education: 1=Less than high school, 2=High school, 3=Some college, 4=2 year college degree, 5=4 year college degree, 6=Doctorate. Income: 1=$1000 or less, 2=$1000-1999, 3=$2000-2999, 4=$3000-3999, 5=$4000-4999, 6=$5000-5999, 7=$6000 or more.

Table 19: Randomization check (Swedish sample)

Control factors	Group 1	Group 2	Group 3	Group 4	Grand mean	Sig	F
Party	3.06 (65)	2.92 (65)	3.34 (65)	2.93 (69)	3.06 (264)	0.731	0.63
Party attachment	1.18 (65)	1.20 (65)	1.20 (65)	1.26 (69)	1.21 (264)	0.545	0.61
Ideology	3.08 (65)	2.88 (65)	3.34 (65)	2.81 (69)	3.02 (264)	0.588	0.84
Gender	0.58 (65)	0.49 (65)	0.68 (65)	0.59 (69)	0.59 (264)	0.762	0.27
Age	3.48 (65)	3.74 (65)	3.72 (65)	3.52 (69)	3.61 (264)	0.353	1.12
Education	4.34 (65)	4.34 (65)	4.18 (65)	4.23 (69)	4.27 (264)	0.097	1.99
Income	2.78 (65)	2.97 (65)	2.97 (65)	2.88 (69)	2.90 (264)	0.770	0.55
Total N	65	65	65	69	264		

Comments: Table display mean scores with N in parentheses. Party: 1=Left Party, 2=Social Democrats, 3=Centre Party, 4=Liberal Party, 5=Moderate Party, 6=Christian Democrats, 7=Green Party, 8=Sweden Democrats. Party attachment: 0=Not at all close, 1=Somewhat close, 2=Very close. Ideology: 1=Clearly to the left, 5=Neither left nor right, 10=Clearly to the right. Gender: 0=Male, 1=Female, 2=Other. Age: 1=Under 18, 2=18-24, 3=25-34, 4=35-44, 5=45-54, 6=55-64, 7=65 or older. Education: 1=Elementary school, 2=High school, 3=University (bachelor level), 4=University (advanced level) 5=Doctorate level. Income: 1=Less than 10 000 SEK, 2=10-19 999 SEK, 3=20-29 999 SEK, 4=30-39 999 SEK, 5=40-49 999 SEK, 6=50-59 999 SEK, 7=60 000 SEK or more.

Appendix D: Survey USA

Welcome to this short survey about a recent climate policy proposal. The survey will only take 2-3 minutes to complete. Be assured that all answers you provide will be kept in the strictest confidentiality.

Generally speaking, do you think of yourself as a Democrat, a Republican or an Independent?

- ○ Democrat (0)
- ○ Republican (1)
- ○ Independent (2)

What is the strength of your party identification?

- ○ Strong Democrat (1)
- ○ Weak Democrat (2)
- ○ Lean Democrat (3)
- ○ Independent (4)
- ○ Lean Republican (5)
- ○ Weak Republican (6)
- ○ Strong Republican (7)

Which point on this scale best describes your political views?

- ○ Very liberal (1)
- ○ Mostly liberal (2)
- ○ Somewhat liberal (3)
- ○ Neither liberal nor conservative (4)
- ○ Somewhat conservative (5)
- ○ Mostly conservative (6)
- ○ Very conservative (7)

What is your gender?

- ○ Male (0)
- ○ Female (1)
- ○ Other (2)

What is your age?

- ○ Under 18 (1)
- ○ 18-24 (2)
- ○ 25-34 (3)
- ○ 35-44 (4)
- ○ 45-54 (5)
- ○ 55-64 (6)
- ○ 65 or older (7)

What is the highest level of education you have completed? If you are currently enrolled in an education, please indicate the level of that education.

- ○ Less than high school (1)
- ○ High school (2)
- ○ Some college (3)
- ○ 2 year college degree (4)
- ○ 4 year college degree (5)
- ○ Doctorate (6)

What is your monthly income (before taxes)?

- ○ $1000 or less (1)
- ○ $1000-1999 (2)
- ○ $2000-2999 (3)
- ○ $3000-3999 (4)
- ○ $4000-4999 (5)
- ○ $5000-5999 (6)
- ○ $6000 or more (7)

[Subjects were then randomly assigned to one of the following four conditions]

Group 1 (control condition)

Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by politicians to put a national price on carbon.

Given the information you just read, what is your opinion about the The Energy Innovation and Carbon Dividend Act?

Group 2 (information only condition)

Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by politicians to put a national price on carbon. The bill would set a carbon price for fossil fuel companies at $15 per ton of carbon emissions and increasing the price by $10 every year, while 100% of the revenues would be returned to American households. According to research, the policy would reduce US carbon emissions by 45 percent by 2030 and up to 80 percent by 2050, compared to 2015, as well as abolish the use of coal in the US electricity system by 2030.

Given the information you just read, what is your opinion about the The Energy Innovation and Carbon Dividend Act?

Group 3 (Republican cue + information)

Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by Republicans to put a national price on carbon. The bill would set a carbon price for fossil fuel companies at $15 per ton of carbon emissions and increasing the price by $10 every year, while 100% of the revenues would be returned to American households. According to research the policy, that is supported by Republicans, would reduce US carbon emissions by 45 percent by 2030 and up to 80 percent by 2050, compared to 2015, as well as abolish the use of coal in the US electricity system by 2030.

Given the information you just read, what is your opinion about the The Energy Innovation and Carbon Dividend Act?

Group 4 (Democrat cue + information)

Next, we would like to know your opinion about a recent climate policy proposal. The Energy Innovation and Carbon Dividend Act is a recently introduced bill by Democrats to put a national price on carbon. The bill would set a carbon price for fossil fuel companies at $15 per ton of carbon emissions and increasing the price by $10 every year, while 100% of the revenues would be returned to American households. According to research the policy, that is supported by Democrats, would reduce US carbon emissions by 45 percent by 2030 and up to 80 percent by 2050, compared to 2015, as well as abolish the use of coal in the US electricity system by 2030.

Given the information you just read, what is your opinion about the The Energy Innovation and Carbon Dividend Act?

- ○ Strongly oppose (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ Neither oppose nor support (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ Strongly support (7)

In the text you just read, what party expressed support for the The Energy Innovation and Carbon Dividend Act?

- ○ Democrats (1)
- ○ Republicans (2)
- ○ Unclear (3)

Start of Block: Random ID

Here is your ID: ${e://Field/Random%20ID}

Copy this value to paste into MTurk.

When you have copied this ID, please click the next button to submit your survey.

Appendix E: Survey Sweden

Välkommen till denna enkät vars syfte är att undersöka hur personer formar miljöpolitiska attityder. Har du frågor om studien kontakta Felix Andersson på gusfelian@student.gu.se. Klicka på pilen nedan för att börja enkäten.

Vilket parti anser du dig stå närmast?

- ○ Vänsterpartiet (1)
- ○ Socialdemokraterna (2)
- ○ Centerpartiet (3)
- ○ Liberalerna (4)
- ○ Moderaterna (5)
- ○ Kristdemokraterna (6)
- ○ Miljöpartiet (7)
- ○ Sverigedemokraterna (8)
- ○ Annat (9)

Hur nära upplever du dig stå detta parti?

- ○ Inte alls nära (0)
- ○ Ganska nära (1)
- ○ Mycket nära (2)

Man talar ibland om att politiska åsikter kan placeras in på en vänster–högerskala. Var någonstans skulle du placera dig själv på en sådan skala?

- ○ Klart till vänster (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ Varken vänster eller höger (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (9)
- ○ Klart till höger (10)

Vilket kön tillhör du?

- ○ Man (0)
- ○ Kvinna (1)
- ○ Annat (2)

Vilken är din ålder?

_____

Vilken skolutbildning har du? Om du ännu inte avslutat din utbildning, markera den du genomgår för närvarande.

- ○ Ej avslutad grundskola (1)
- ○ Grundskola (2)
- ○ Gymnasieskola (3)
- ○ Universitet/högskola, grundnivå (4)
- ○ Universitet/högskola, avancerad nivå (5)
- ○ Forskarutbildning (6)

Hur stor är din egen månadsinkomst före skatt?

- ○ Mindre än 10 000 kronor (1)
- ○ 10-19 999 kronor (2)
- ○ 20-29 999 kronor (3)
- ○ 30-39 999 kronor (4)
- ○ 40-49 999 kronor (5)
- ○ 50-59 999 kronor (6)
- ○ 60 000 kronor eller mer (7)

[Subjects were then randomly assigned to one of four conditions]

Group 1 (Control condition)

Härnäst är jag intresserad av din åsikt om ett aktuellt klimatpolitiskt förslag. Vissa politiker har föreslagit ett bonus-malus system för nya bilar, vilket innebär att nya bilar beskattas utifrån utsläppsnivå.

Givet informationen du just läste, vad är din åsikt om att införa ett bonus-malus system för nya bilar?

Group 2 (information only condition)

Härnäst är jag intresserad av din åsikt om ett aktuellt klimatpolitiskt förslag. Vissa politiker har föreslagit ett bonus-malus system för nya bilar, vilket innebär att nya bilar beskattas utifrån utsläppsnivå. Enligt förslaget kommer nya bilar med noll eller relativt låga koldioxidutsläpp att premieras med en bonus på maximalt 60 000 kronor, medan nya bensin- och dieseldrivna bilar med relativt höga koldioxidutsläpp kommer att få en förhöjd fordonsskatt under de tre första åren. Enligt forskning kommer förslaget att reducera utsläppen från nya bilar i snabbare takt än tidigare samt minska koldioxidutsläppen med fyra miljoner ton och kväveoxidutsläppen med tre tusen ton till år 2030.

Givet informationen du just läste, vad är din åsikt om att införa ett bonus-malus system för nya bilar?

Group 3 (Moderate cue + information)

Härnäst är jag intresserad av din åsikt om ett aktuellt klimatpolitiskt förslag. Moderaterna har föreslagit ett bonus-malus system för nya bilar, vilket innebär att nya bilar beskattas utifrån utsläppsnivå. Enligt förslaget kommer nya bilar med noll eller relativt låga koldioxidutsläpp att premieras med en bonus på maximalt 60 000 kronor, medan nya bensin- och dieseldrivna bilar med relativt höga koldioxidutsläpp kommer att få en förhöjd fordonsskatt under de tre första åren. Enligt forskning kommer förslaget, som stöds av Moderaterna, att reducera utsläppen från nya bilar i snabbare takt än tidigare samt minska koldioxidutsläppen med fyra miljoner ton och kväveoxidutsläppen med tre tusen ton till år 2030.

Givet informationen du just läste, vad är din åsikt om att införa ett bonus-malus system för nya bilar?

Group 4 (Social Democrat cue + information)

Härnäst är jag intresserad av din åsikt om ett aktuellt klimatpolitiskt förslag. Socialdemokraterna har föreslagit ett bonus-malus system för nya bilar, vilket innebär att nya bilar beskattas utifrån utsläppsnivå. Enligt förslaget kommer nya bilar med noll eller relativt låga koldioxidutsläpp att premieras med en bonus på maximalt 60 000 kronor, medan nya bensin- och dieseldrivna bilar med relativt höga koldioxidutsläpp kommer att få en förhöjd fordonsskatt under de tre första åren. Enligt forskning kommer förslaget, som stöds av Socialdemokraterna, att reducera utsläppen från nya bilar i snabbare takt än tidigare samt minska koldioxidutsläppen med fyra miljoner ton och kväveoxidutsläppen med tre tusen ton till år 2030.

Givet informationen du just läste, vad är din åsikt om att införa ett bonus-malus system för nya bilar?

- ○ Starkt emot förslaget (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ Varken för eller emot förslaget (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ Starkt för förslaget (7)

Vilket parti uttryckte i texten stöd för att införa ett bonus-malus system för nya bilar?

- ○ Socialdemokraterna (1)
- ○ Moderaterna (2)
- ○ Det framgick inte (3)

Appendix F: Survey Sweden (translated into English)

Welcome to this survey whose purpose is to study how people form climate policy opinions. If you have any questions about the study, please contact Felix Andersson at gusfelian@student.gu.se. Click on the arrow below to start the survey.

What party do you feel closest to?

- ○ Left Party (1)
- ○ Social Democrats (2)
- ○ Centre Party (3)
- ○ Liberal Party (4)
- ○ The Moderates (5)
- ○ Christian Democrats (6)
- ○ Green Party (7)
- ○ Sweden Democrats (8)
- ○ Other (9)

How closely to you identify with this party?

- ○ Not close at all (0)
- ○ Somewhat close (1)
- ○ Very close (2)

It is sometimes said that political views can be placed on a left-right scale. Where would you place yourself on such a scale?

- ○ Clearly to the left (0)
- ○ 2 (1)
- ○ 3 (2)
- ○ 4 (3)
- ○ 5 (4)
- ○ Neither left nor right (5)
- ○ 7 (6)
- ○ 8 (7)
- ○ 9 (8)
- ○ 10 (9)
- ○ Clearly to the right (10)

What gender do you identify with?

- ○ Male (0)
- ○ Female (1)
- ○ Other (2)

What is your age?

_____

What level of education do you have? If you have not finished your education, please indicate the education you are currently enrolled in.

- ○ Not finished elementary school (1)
- ○ Elementary school (2)
- ○ High school (3)
- ○ University, bachelor level (4)
- ○ University, advanced level (5)
- ○ Doctorate (6)

What is your monthly income before taxes?

- ○ Less than 10 000 SEK (1)
- ○ 10-19 999 SEK (2)
- ○ 20-29 999 SEK (3)
- ○ 30-39 999 SEK (4)
- ○ 40-49 999 SEK (5)
- ○ 50-59 999 SEK (6)
- ○ 60 000 SEK or more (7)

[Subjects were then randomly assigned to one of four conditions]

Group 1 (Control condition)

Next, I am interested in your opinion on a recent climate policy proposal. Some politicians have proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions.

Given the information you just read, what is your opinion of introducing a bonus-malus policy for new cars?

Group 2 (information only condition)

Next, I am interested in your opinion on a recent climate policy proposal. Some politicians have proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions. According to the proposal, new cars with no or relatively low carbon emissions will be rewarded with a bonus of maximum SEK 60,000, while new petrol and diesel cars with relatively high carbon emissions will receive an increased vehicle tax during the first three years. According to research, the proposal will reduce emissions from new cars at a faster rate than before and reduce carbon dioxide emissions by four million tonnes and nitrogen oxide emissions by three thousand tonnes by 2030.

Given the information you just read, what is your opinion of introducing a bonus-malus policy for new cars?

Group 3 (Moderate cue + information)

Next, I am interested in your opinion on a recent climate policy proposal. The Moderates has proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions. According to the proposal, new cars with no or relatively low carbon emissions will be rewarded with a bonus of maximum SEK 60,000, while new petrol and diesel cars with relatively high carbon emissions will receive an increased vehicle tax during the first three years. According to research the proposal, that is supported by the Moderates, will reduce emissions from new cars at a faster rate than before and reduce carbon dioxide emissions by four million tonnes and nitrogen oxide emissions by three thousand tonnes by 2030.

Given the information you just read, what is your opinion of introducing a bonus-malus policy for new cars?

Group 4 (Social Democrat cue + information)

Next, I am interested in your opinion on a recent climate policy proposal. The Social Democrats has proposed a bonus-malus system for new cars, which means that new cars are taxed based on their levels of emissions. According to the proposal, new cars with no or relatively low carbon emissions will be rewarded with a bonus of maximum SEK 60,000, while new petrol and diesel cars with relatively high carbon emissions will receive an increased vehicle tax during the first three years. According to research the proposal, that is supported by the Social Democrats, will reduce emissions from new cars at a faster rate than before and reduce carbon dioxide emissions by four million tonnes and nitrogen oxide emissions by three thousand tonnes by 2030.

Given the information you just read, what is your opinion of introducing a bonus-malus policy for new cars?

- ○ Strongly oppose (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ Neither oppose nor support (4)
- ○ 5 (5)
- ○ 6 (6)
- ○ Strongly support (7)

What party in the text expressed support for the bonus-malus policy?

- ○ Social Democrats (1)
- ○ Moderates (2)
- ○ Unclear (3)